

1 I Claim:

2 1. A fuel conditioning device designed for interposition between an engine's fuel  
3 supply line and the engine's fuel combustion zone, which device comprises a cylindrical body  
4 portion, with an input end and an output end, and a flow through passageway in the body  
5 portion;

6 the input end is in fluid communication with the fuel supply line, and the output end is  
7 in fluid communication with the fuel combustion portion of the engine;

8 wherein disposed within the body portion is a series of cells comprised of a pair of  
9 plastic spaced and opposed disks with a copper-based disk in intimate contact with a zinc-  
10 based disk between each such pair of opposed spaced disks.

11 2. The device of claim 1 wherein the copper-based disk of each cell face the input end  
12 of the device.

13 3. The device of claim 1 wherein the copper-based disk comprises an alloy of 11 to 20  
14 per cent pure silver and 80 to 89 per cent electrolytic copper.

15 4. The device of claim 1 wherein the zinc-based disk is pure zinc.

16 5. The device of claim 3 wherein the silver percent is 15 percent of the alloy total  
17 weight.

18 6. The device of claim 1 wherein the copper-based disk comprises an alloy of 11 to 20  
19 per cent pure silver and 80 to 89 per cent electrolytic copper, and both metal disks have the  
20 same size centrally disposed racetrack shape cutout.

21 7. A fuel conditioning device designed for interposition between an engine's fuel  
22 supply line and the engine's fuel combustion zone, which device comprises a flow through  
23 body portion, having an input end and an output end, each end having a hollow plug therein,

24 wherein the input end plug is in fluid communication with the fuel supply line, and the  
25 output end plug is in fluid communication with the fuel combustion portion of the engine;

26 and disposed within the body portion is a series of bored, only plastic disks at each  
27 end, a series of cells comprised of a pair of plastic spaced and opposed disks with a copper-  
28 based disk in intimate contact with a zinc-based disk between each such pair of opposed  
29 spaced disks, between the first series of only plastic disks whereby fuel flows through the  
30 bored plastic disks and at least around the cells' metal disks and through the second set of  
31 bored plastic disks for egress to the combustion area of an engine.

32 8. The device of claim 7 both metal disks have the same size centrally disposed  
33 racetrack shape cutout, and each metal disk is of a diameter smaller than the plastic disks.

34 9. The device of claim 7 wherein the bores of the first series of only plastic disks

1 provide a quasi-sinusoidal travel path for the fuel to travel on route to the first cell.

2 10. The device of claim 8 wherein the bores of the first series of only plastic disks  
3 provide a quasi-sinusoidal travel path for the fuel to travel on route to the output plug.

4 11. The device of claim 1 wherein each plastic disk has a centrally disposed edge  
5 groove with an O-ring disposed therein.

6 12. A fuel conditioning device designed to be positioned between a fuel supply and a  
7 fuel combustion portion of an engine which device comprises an elongated tubular housing  
8 having an inlet end, an outlet end, and a flow through passage extending there between;

9 wherein the inlet end is coupled to the fuel supply to receive fuel flow there into the  
10 flow through passage, whereby upon a flow of the fuel, the fuel flows upwardly and  
11 downwardly through a series of bored plastic and metal disks disposed in said passageway to  
12 condition the fuel to increase combustibility and lessen particulate emissions.

13 13. The device of claim 12 wherein the metal disks are of a lesser diameter than the  
14 plastic disks, and metal disks comprise a copper-based disk and a zinc-based disk in intimate  
15 contact therewith.

16 14. The device of claim 13 wherein both metal disks have the same sized racetrack  
17 shape bore therein, and the bores are aligned and the metallic disks are placed with the copper-  
18 based disk facing the input end of the device.

19 15. The device of claim 12 wherein the series of plastic disks impose a quasi-sinusoidal  
20 travel path for fuel moving therethrough.

21 16. The device of claim 1 including means to retain the disks in a predetermined  
22 aligned relationship within the body portion.

23 17. The device of claim 7 including means to retain the disks in a predetermined  
24 aligned relationship within the body portion.

25 18. The device of claim 16 wherein the means to retain disks aligned, comprises a pair  
26 of spaced bores through each disk at the same locations, and a respective rod extending  
27 through each spaced bore.

28 19. The device of claim 17 wherein the means to retain disks aligned, comprises a pair  
29 of spaced bores through each disk at the same locations, and a respective rod extending  
30 through each spaced bore.

31 20. The device of claim 12 wherein the bored plastic series of disks on the fuel inlet  
32 end of the device preceding the metal disks have spaced rod apertures for alignment of said  
33 disks, and wherein the first disk adjacent the end cap has a central opening, the second disk  
34 has a half racetrack slot, and the third disk has a circular opening at one end of the disk.